GenCore version 5.1.3


OM protein - protein search, using sw model

Run on: November 30, 2002, 12:31:03 ; Search time 27 Seconds
(without alignments)
2482.410 Million cell updates/sec

Title: US-10-025-514-16
Perfect score: 2675
Sequence: 1 MEDPQGDAAQKTDTSHHDQD.....RDLKCCMGMCGKSCVSPVKA 503

Scoring table: BLOSUM62
Gapop 10.0 , Gapext 0.5

Searched: 908470 seqs, 133250620 residues

Total number of hits satisfying chosen parameters: 908470

Minimum DB seq length: 0
Maximum DB seq length: 2000000000

Post-processing: Minimum Match 0%
Maximum Match 100%
Listing first 45 summaries

Database : A_Geneseq_101002:*
1: /SIDS2/gcgdata/geneseq/geneseqp-embl/AA1980.DAT:*
2: /SIDS2/gcgdata/geneseq/geneseqp-embl/AA1981.DAT:*
3: /SIDS2/gcgdata/geneseq/geneseqp-embl/AA1982.DAT:*
4: /SIDS2/gcgdata/geneseq/geneseqp-embl/AA1983.DAT:*
5: /SIDS2/gcgdata/geneseq/geneseqp-embl/AA1984.DAT:*
6: /SIDS2/gcgdata/geneseq/geneseqp-embl/AA1985.DAT:*
7: /SIDS2/gcgdata/geneseq/geneseqp-embl/AA1986.DAT:*
8: /SIDS2/gcgdata/geneseq/geneseqp-embl/AA1987.DAT:*
9: /SIDS2/gcgdata/geneseq/geneseqp-embl/AA1988.DAT:*
10: /SIDS2/gcgdata/geneseq/geneseqp-embl/AA1989.DAT:*
11: /SIDS2/gcgdata/geneseq/geneseqp-embl/AA1990.DAT:*
12: /SIDS2/gcgdata/geneseq/geneseqp-embl/AA1991.DAT:*
13: /SIDS2/gcgdata/geneseq/geneseqp-embl/AA1992.DAT:*
14: /SIDS2/gcgdata/geneseq/geneseqp-embl/AA1993.DAT:*
15: /SIDS2/gcgdata/geneseq/geneseqp-embl/AA1994.DAT:*
16: /SIDS2/gcgdata/geneseq/geneseqp-embl/AA1995.DAT:*
17: /SIDS2/gcgdata/geneseq/geneseqp-embl/AA1996.DAT:*
18: /SIDS2/gcgdata/geneseq/geneseqp-embl/AA1997.DAT:*
19: /SIDS2/gcgdata/geneseq/geneseqp-embl/AA1998.DAT:*
20: /SIDS2/gcgdata/geneseq/geneseqp-embl/AA1999.DAT:*
21: /SIDS2/gcgdata/geneseq/geneseqp-embl/AA2000.DAT:*
22: /SIDS2/gcgdata/geneseq/geneseqp-embl/AA2001.DAT:*
23: /SIDS2/gcgdata/geneseq/geneseqp-embl/AA2002.DAT:*

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

SUMMARIES

| Result No. | Score | % Query Match | Length | DB | ID | Description |
|---|---|---|---|---|---|---|
| 1 | 2675 | 100.0 | 503 | 23 | AAU99884 | rSLAP1 fusion prot |
| 2 | 2040.5 | 76.3 | 522 | 23 | AAU99885 | rN-TAP1 fusion pro |
| 3 | 2040.5 | 76.3 | 580 | 23 | AAU99889 | rTAP1 fusion prote |
| 4 | 2035 | 76.1 | 503 | 23 | AAU99881 | SLAP1 fusion prote |
| 5 | 2035 | 76.1 | 522 | 23 | AAU99883 | NTAP1 fusion prote |
| 6 | 2035 | 76.1 | 580 | 23 | AAU99882 | TAP1 fusion protei |
| 7 | 2030 | 75.9 | 394 | 19 | AAW59839 | Mature protein seq |
| 8 | 2030 | 75.9 | 394 | 23 | AAU99873 | Human alpha-1-anti |
| 9 | 2030 | 75.9 | 418 | 5 | AAP40133 | Sequence of human |
| 10 | 2030 | 75.9 | 418 | 10 | AAP94664 | Predominant form o |
| 11 | 2030 | 75.9 | 418 | 20 | AAY26925 | Human alphal-anti- |
| 12 | 2022 | 75.6 | 393 | 13 | AAR20802 | Alpha-1-antitrypsi |
| 13 | 2021 | 75.6 | 418 | 16 | AAR71969 | Human alpha-1-tryp |
| 14 | 2021 | 75.6 | 418 | 19 | AAW56709 | Amino acid sequenc |
| 15 | 2021 | 75.6 | 418 | 21 | AAY78890 | Human alphal-antit |
| 16 | 2020 | 75.5 | 417 | 21 | AAB36101 | Human alphal-prote |
| 17 | 2020 | 75.5 | 417 | 21 | AAB26705 | Human alphal-antit |
| 18 | 2019 | 75.5 | 394 | 16 | AAR67360 | Human alpha-1-anti |
| 19 | 2018 | 75.4 | 418 | 10 | AAP90128 | Sequence encoded b |
| 20 | 2011 | 75.2 | 394 | 7 | AAP61712 | [Leu358] alphal-an |
| 21 | 2011 | 75.2 | 394 | 11 | AAR03754 | Entire sequence of |
| 22 | 2010 | 75.1 | 394 | 7 | AAP61710 | [Ile358] alphal-an |
| 23 | 2010 | 75.1 | 394 | 7 | AAP61711 | [Ile358] alphal-an |
| 24 | 2010 | 75.1 | 418 | 6 | AAP50021 | Sequence of alpha- |
| 25 | 2010 | 75.1 | 418 | 13 | AAR22931 | Alpha-1 antitrypsi |
| 26 | 2009 | 75.1 | 394 | 7 | AAP61713 | [Phe358] alphal-an |
| 27 | 2009 | 75.1 | 394 | 16 | AAR67362 | Alpha-1-antitrypsi |
| 28 | 2008 | 75.1 | 394 | 7 | AAP61709 | [Ala358] alphal-an |
| 29 | 2008 | 75.1 | 394 | 7 | AAP60512 | [Arg358] alphal-an |
| 30 | 2008 | 75.1 | 394 | 20 | AAY44205 | Alpha-1 antitrypsi |
| 31 | 2008 | 75.1 | 418 | 6 | AAP50577 | Sequence of human |
| 32 | 2006 | 75.0 | 394 | 7 | AAP61708 | [Gly358] alphal-an |
| 33 | 2006 | 75.0 | 418 | 6 | AAP50877 | Sequence encoded b |
| 34 | 2005 | 75.0 | 394 | 16 | AAR67363 | Alpha-1-antitrypsi |
| 35 | 2003 | 74.9 | 394 | 20 | AAY44201 | Alpha-1 antitrypsi |
| 36 | 1995 | 74.6 | 414 | 21 | AAB26296 | Human alphal-antit |
| 37 | 1995 | 74.6 | 414 | 21 | AAB26324 | Human alphal-antit |
| 38 | 1979 | 74.0 | 394 | 16 | AAR67361 | Alpha-1-antitrypsi |
| 39 | 1969 | 73.6 | 448 | 6 | AAP50132 | Sequence of the pr |
| 40 | 1913 | 71.5 | 669 | 23 | ABB77831 | Sequence of fusion |
| 41 | 1895 | 70.8 | 399 | 11 | AAR04033 | GAPDH promotor fra |
| 42 | 1674 | 62.6 | 418 | 10 | AAP94665 | Human alpha-1-anti |
| 43 | 1667 | 62.3 | 418 | 5 | AAP40134 | Sequence of human |
| 44 | 1666 | 62.3 | 395 | 9 | AAP83189 | [Ala357, Arg358] A |
| 45 | 1648 | 61.6 | 390 | 9 | AAP83190 | [delta 1-5][Arg358 |

ALIGNMENTS

RESULT 1
AAU99884
ID AAU99884 standard; Protein; 503 AA.
XX
AC AAU99884;
XX
DT 07-OCT-2002 (first entry)
XX
DE rSLAP1 fusion protein.
XX
KW rSLAP1; Alzheimer's disease; tumour angiogenesis;
KW malaria; emphysema; asthma; chronic obstructive pulmonary disease;
KW cystic fibrosis; otitis media; otitis external; HIV; psoriasis; eczema;
KW human immunodeficiency virus; atopic dermatitis; muscular dystrophy;
KW herpes; ulceration; sepsis; rheumatoid arthritis; periodontal disease;
KW tumour metastasis; osteoporosis; Paget's disease; scleroderma;
KW glomerulonephritis; hypertension.
XX
OS Homo sapiens.
OS Synthetic.
XX
FH Key Location/Qualifiers
FT Region 2..395
FT /note= "Human AAT amino acids 1-394"
FT Region 396
FT /note= "Linker methionine"
FT Region 397..503
FT /note= "Amino acids 1-107 of human AAT"
XX
PN WO200250287-A2.
XX
PD 27-JUN-2002.
XX

PF 18-DEC-2001; 2001WO-US49256.
XX
PR 18-DEC-2000; 2000US-256699P.
PR 20-NOV-2001; 2001US-331966P.
XX
PA (ARRI-) ARRIVA PHARM INC.
XX
PI Barr PJ, Gibson HL, Pemberton P;
XX
DR WPI; 2002-500631/53.
DR N-PSDB; ABK88025.
XX
PT Novel fusion protein useful for inhibiting protease activity associated
PT with a disorder such as emphysema, asthma, comprises a first protease
PT inhibitor comprising alpha 1-antitrypsin and a second protease
PT inhibitor -
XX
PS Example 3; Page 90-91; 134pp; English.
XX
CC This invention relates to a novel fusion protein comprising a first
CC protease inhibitor comprising an alphal-antitrypsin or its functionally
CC active portion and a second protease inhibitor or its functionally
CC active protein. The fusion proteins of the invention may act as an
CC inhibitor of protease activity. The fusion protein of the invention
CC is useful for inhibiting protease activity associated with a disorder
CC such as emphysema, asthma, chronic obstructive pulmonary disease,
CC cystic fibrosis, otitis media, otitis external or HIV infection, or
CC for treating an individual suffering from or at risk for a disease or
CC disorder involving unwanted protease activity. The proteins are useful
CC for treating dermatological diseases such as atopic dermatitis, eczema
CC and psoriasis, in inflammatory responses to viral infection, and for
CC treating herpes infection, corneal or epidermal ulceration, chronic
CC non-healing wounds, sepsis, rheumatoid arthritis, periodontal disease,
CC tumour metastasis and tumour angiogenesis, gastric ulceration,
CC osteoporosis, Paget's disease, glomerulonephritis, scleroderma, malaria,
CC bacterial infection, Alzheimer's disease, hypertension and muscular
CC dystrophy. The present sequence represents the rSLAP1 fusion protein of
CC the invention.
XX
SQ Sequence 503 AA;

Query Match 100.0%; Score 2675; DB 23; Length 503;
Best Local Similarity 100.0%; Pred. No. 1e-199;
Matches 503; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

```
Qy       1 MEDPQGDAAQKTDTSHHDQDHPTFNKITPNLAEFAFSLYRQLAHQSNSTNIFFSPVSIAT 60
          ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db       1 MEDPQGDAAQKTDTSHHDQDHPTFNKITPNLAEFAFSLYRQLAHQSNSTNIFFSPVSIAT 60

Qy      61 AFAMLSLGTKADTHDEILEGLNFNLTEIPEAQIHEGFQELLRTLNQPDSQLQLTTGNGLF 120
          ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db      61 AFAMLSLGTKADTHDEILEGLNFNLTEIPEAQIHEGFQELLRTLNQPDSQLQLTTGNGLF 120

Qy     121 LSEGLKLVDKFLEDVKKLYHSEAFTVNFGDTEEAKKQINDYVEKGTQGKIVDLVKELDRD 180
          ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db     121 LSEGLKLVDKFLEDVKKLYHSEAFTVNFGDTEEAKKQINDYVEKGTQGKIVDLVKELDRD 180

Qy     181 TVFALVNYIFFKGKWERPFEVKDTEEEDFHVDQVTTVKVPMMKRLGMFNIQHCKKLSSWV 240
          ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db     181 TVFALVNYIFFKGKWERPFEVKDTEEEDFHVDQVTTVKVPMMKRLGMFNIQHCKKLSSWV 240

Qy     241 LLMKYLGNATAIFFLPDEGKLQHLENELTHDIITKFLENEDRRSASLHLPKLSITGTYDL 300
          ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db     241 LLMKYLGNATAIFFLPDEGKLQHLENELTHDIITKFLENEDRRSASLHLPKLSITGTYDL 300

Qy     301 KSVLGQLGITKVFSNGADLSGVTEEAPLKLSKAVHKAVLTIDEKGTEAAGAMFLEAIPMS 360
          ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db     301 KSVLGQLGITKVFSNGADLSGVTEEAPLKLSKAVHKAVLTIDEKGTEAAGAMFLEAIPMS 360

Qy     361 IPPEVKFNKPFVFLMIEQNTKSPLFMGKVVNPTQKMSGKSFKAGVCPPKKSAQCLRYKKP 420
          ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db     361 IPPEVKFNKPFVFLMIEQNTKSPLFMGKVVNPTQKMSGKSFKAGVCPPKKSAQCLRYKKP 420
```

```
Qy     421 ECQSDWQCPGKKRCCPDTCGIKCLDPVDTPNPTRRKPGKCPVTYGQCLMLNPPNFCEMDG 480
          ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db     421 ECQSDWQCPGKKRCCPDTCGIKCLDPVDTPNPTRRKPGKCPVTYGQCLMLNPPNFCEMDG 480

Qy     481 QCKRDLKCCMGMCGKSCVSPVKA 503
          |||||||||||||||||||||||
Db     481 QCKRDLKCCMGMCGKSCVSPVKA 503
```

RESULT 2
AAU99885
ID AAU99885 standard; Protein; 522 AA.
XX
AC AAU99885;
XX
DT 07-OCT-2002 (first entry)
XX
DE rN-TAP1 fusion protein.
XX
KW rN-TAP1; Alzheimer's disease; tumour angiogenesis;
KW malaria; emphysema; asthma; chronic obstructive pulmonary disease;
KW cystic fibrosis; otitis media; otitis external; HIV; psoriasis; eczema;
KW human immunodeficiency virus; atopic dermatitis; muscular dystrophy;
KW herpes; ulceration; sepsis; rheumatoid arthritis; periodontal disease;
KW tumour metastasis; osteoporosis; Paget's disease; scleroderma;
KW glomerulonephritis; hypertension.
XX
OS Homo sapiens.
OS Synthetic.
XX

| FH | Key | Location/Qualifiers |
|---|---|---|
| FT | Region | 2..395 |
| FT | | /note= "Human AAT amino acids 1-394" |
| FT | Region | 396 |
| FT | | /note= "Linker methionine" |
| FT | Region | 397..522 |
| FT | | /note= "Amino acids 1-126 of human TIMP-1" |

XX
PN WO200250287-A2.
XX
PD 27-JUN-2002.
XX
PF 18-DEC-2001; 2001WO-US49256.
XX
PR 18-DEC-2000; 2000US-256699P.
PR 20-NOV-2001; 2001US-331966P.
XX
PA (ARRI-) ARRIVA PHARM INC.
XX
PI Barr PJ, Gibson HL, Pemberton P;
XX
DR WPI; 2002-500631/53.
DR N-PSDB; ABK88027.
XX
PT Novel fusion protein useful for inhibiting protease activity associated
PT with a disorder such as emphysema, asthma, comprises a first protease
PT inhibitor comprising alpha 1-antitrypsin and a second protease
PT inhibitor -
XX
PS Example 3; Page 97; 134pp; English.
XX
CC This invention relates to a novel fusion protein comprising a first
CC protease inhibitor comprising an alphal-antitrypsin or its functionally
CC active portion and a second protease inhibitor or its functionally
CC active protein. The fusion proteins of the invention may act as an
CC inhibitor of protease activity. The fusion protein of the invention
CC is useful for inhibiting protease activity associated with a disorder
CC such as emphysema, asthma, chronic obstructive pulmonary disease,
CC cystic fibrosis, otitis media, otitis external or HIV infection, or
CC for treating an individual suffering from or at risk for a disease or
CC disorder involving unwanted protease activity. The proteins are useful
CC for treating dermatological diseases such as atopic dermatitis, eczema
CC and psoriasis, in inflammatory responses to viral infection, and for

```
CC   treating herpes infection, corneal or epidermal ulceration, chronic
CC   non-healing wounds, sepsis, rheumatoid arthritis, periodontal disease,
CC   tumour metastasis and tumour angiogenesis, gastric ulceration,
CC   osteoporosis, Paget's disease, glomerulonephritis, scleroderma, malaria,
CC   bacterial infection, Alzheimer's disease, hypertension and muscular
CC   dystrophy. The present sequence represents the rN-TAP1 fusion protein of
CC   the invention.
XX
SQ   Sequence   522 AA;

  Query Match             76.3%;  Score 2040.5;  DB 23;  Length 522;
  Best Local Similarity   96.6%;  Pred. No. 2.7e-150;
  Matches  400;  Conservative    2;  Mismatches    7;  Indels    5;  Gaps    1;

Qy       1 MEDPQGDAAQKTDTSHHDQDHPTFNKITPNLAEFAFSLYRQLAHQSNSTNIFFSPVSIAT 60
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db       1 MEDPQGDAAQKTDTSHHDQDHPTFNKITPNLAEFAFSLYRQLAHQSNSTNIFFSPVSIAT 60

Qy      61 AFAMLSLGTKADTHDEILEGLNFNLTEIPEAQIHEGFQELLRTLNQPDSQLQLTTGNGLF 120
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db      61 AFAMLSLGTKADTHDEILEGLNFNLTEIPEAQIHEGFQELLRTLNQPDSQLQLTTGNGLF 120

Qy     121 LSEGLKLVDKFLEDVKKLYHSEAFTVNFGDTEEAKKQINDYVEKGTQGKIVDLVKELDRD 180
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db     121 LSEGLKLVDKFLEDVKKLYHSEAFTVNFGDTEEAKKQINDYVEKGTQGKIVDLVKELDRD 180

Qy     181 TVFALVNYIFFKGKWERPFEVKDTEEEDFHVDQVTTVKVPMMKRLGMFNIQHCKKLSSWV 240
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db     181 TVFALVNYIFFKGKWERPFEVKDTEEEDFHVDQVTTVKVPMMKRLGMFNIQHCKKLSSWV 240

Qy     241 LLMKYLGNATAIFFLPDEGKLQHLENELTHDIITKFLENEDRRSASLHLPKLSITGTYDL 300
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db     241 LLMKYLGNATAIFFLPDEGKLQHLENELTHDIITKFLENEDRRSASLHLPKLSITGTYDL 300

Qy     301 KSVLGQLGITKVFSNGADLSGVTEEAPLKLSKAVHKAVLTIDEKGTEAAGAMFLEAIPMS 360
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db     301 KSVLGQLGITKVFSNGADLSGVTEEAPLKLSKAVHKAVLTIDEKGTEAAGAMFLEAIPMS 360

Qy     361 IPPEVKFNKPFVFLMIEQNTKSPLFMGKVVNPTQKMSGKSFKAGVCPPKKSAQC 414
           ||||||||||||||||||||||||||||||||||||       | |  ::| |
Db     361 IPPEVKFNKPFVFLMIEQNTKSPLFMGKVVNPTQKMC-----TCVPPHPQTAFC 409


RESULT 3
AAU99889
ID   AAU99889 standard; Protein; 580 AA.
XX
AC   AAU99889;
XX
DT   07-OCT-2002  (first entry)
XX
DE   rTAP1 fusion protein.
XX
KW   rTAP1; Alzheimer's disease; tumour angiogenesis;
KW   malaria; emphysema; asthma; chronic obstructive pulmonary disease;
KW   cystic fibrosis; otitis media; otitis external; HIV; psoriasis; eczema;
KW   human immunodeficiency virus; atopic dermatitis; muscular dystrophy;
KW   herpes; ulceration; sepsis; rheumatoid arthritis; periodontal disease;
KW   tumour metastasis; osteoporosis; Paget's disease; scleroderma;
KW   glomerulonephritis; hypertension.
XX
OS   Homo sapiens.
OS   Synthetic.
XX
FH   Key             Location/Qualifiers
FT   Region          2..395
FT                   /note= "Human AAT amino acids 1-394"
FT   Region          396
FT                   /note= "Linker methionine"
FT   Region          397..580
FT                   /note= "Amino acids 1-184 of human TIMP-1"
XX
PN   WO200250287-A2.
XX
PD   27-JUN-2002.
XX
PF   18-DEC-2001; 2001WO-US49256.
XX
PR   18-DEC-2000; 2000US-256699P.
PR   20-NOV-2001; 2001US-331966P.
XX
PA   (ARRI-) ARRIVA PHARM INC.
XX
PI   Barr PJ,  Gibson HL,  Pemberton P;
XX
DR   WPI; 2002-500631/53.
DR   N-PSDB; ABK88026.
XX
PT   Novel fusion protein useful for inhibiting protease activity associated
PT   with a disorder such as emphysema, asthma, comprises a first protease
PT   inhibitor comprising alpha 1-antitrypsin and a second protease
PT   inhibitor -
XX
PS   Example 3; Page 94; 134pp; English.
XX
CC   This invention relates to a novel fusion protein comprising a first
CC   protease inhibitor comprising an alpha1-antitrypsin or its functionally
CC   active portion and a second protease inhibitor or its functionally
CC   active protein. The fusion proteins of the invention may act as an
CC   inhibitor of protease activity. The fusion protein of the invention
CC   is useful for inhibiting protease activity associated with a disorder
CC   such as emphysema, asthma, chronic obstructive pulmonary disease,
CC   cystic fibrosis, otitis media, otitis external or HIV infection, or
CC   for treating an individual suffering from or at risk for a disease or
CC   disorder involving unwanted protease activity. The proteins are useful
CC   for treating dermatological diseases such as atopic dermatitis, eczema
CC   and psoriasis, in inflammatory responses to viral infection, and for
CC   treating herpes infection, corneal or epidermal ulceration, chronic
CC   non-healing wounds, sepsis, rheumatoid arthritis, periodontal disease,
CC   tumour metastasis and tumour angiogenesis, gastric ulceration,
CC   osteoporosis, Paget's disease, glomerulonephritis, scleroderma, malaria,
CC   bacterial infection, Alzheimer's disease, hypertension and muscular
CC   dystrophy. The present sequence represents the rTAP1 fusion protein of
CC   the invention.
XX
SQ   Sequence   580 AA;

  Query Match             76.3%;  Score 2040.5;  DB 23;  Length 580;
  Best Local Similarity   96.6%;  Pred. No. 3.1e-150;
  Matches  400;  Conservative    2;  Mismatches    7;  Indels    5;  Gaps    1;

Qy       1 MEDPQGDAAQKTDTSHHDQDHPTFNKITPNLAEFAFSLYRQLAHQSNSTNIFFSPVSIAT 60
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db       1 MEDPQGDAAQKTDTSHHDQDHPTFNKITPNLAEFAFSLYRQLAHQSNSTNIFFSPVSIAT 60

Qy      61 AFAMLSLGTKADTHDEILEGLNFNLTEIPEAQIHEGFQELLRTLNQPDSQLQLTTGNGLF 120
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db      61 AFAMLSLGTKADTHDEILEGLNFNLTEIPEAQIHEGFQELLRTLNQPDSQLQLTTGNGLF 120

Qy     121 LSEGLKLVDKFLEDVKKLYHSEAFTVNFGDTEEAKKQINDYVEKGTQGKIVDLVKELDRD 180
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db     121 LSEGLKLVDKFLEDVKKLYHSEAFTVNFGDTEEAKKQINDYVEKGTQGKIVDLVKELDRD 180

Qy     181 TVFALVNYIFFKGKWERPFEVKDTEEEDFHVDQVTTVKVPMMKRLGMFNIQHCKKLSSWV 240
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db     181 TVFALVNYIFFKGKWERPFEVKDTEEEDFHVDQVTTVKVPMMKRLGMFNIQHCKKLSSWV 240

Qy     241 LLMKYLGNATAIFFLPDEGKLQHLENELTHDIITKFLENEDRRSASLHLPKLSITGTYDL 300
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db     241 LLMKYLGNATAIFFLPDEGKLQHLENELTHDIITKFLENEDRRSASLHLPKLSITGTYDL 300

Qy     301 KSVLGQLGITKVFSNGADLSGVTEEAPLKLSKAVHKAVLTIDEKGTEAAGAMFLEAIPMS 360
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db     301 KSVLGQLGITKVFSNGADLSGVTEEAPLKLSKAVHKAVLTIDEKGTEAAGAMFLEAIPMS 360

Qy     361 IPPEVKFNKPFVFLMIEQNTKSPLFMGKVVNPTQKMSGKSFKAGVCPPKKSAQC 414
```

```
          ||||||||||||||||||||||||||||||||||||        | |  ::| |
Db    361 IPPEVKFNKPFVFLMIEQNTKSPLFMGKVVNPTQKMC-----TCVPPHPQTAFC 409


RESULT 4
AAU99881
ID   AAU99881 standard; Protein; 503 AA.
XX
AC   AAU99881;
XX
DT   07-OCT-2002  (first entry)
XX
DE   SLAP1 fusion protein.
XX
KW   Alzheimer's disease; SLAP1; fusionprotein;
KW   malaria; emphysema; asthma; chronic obstructive pulmonary disease;
KW   cystic fibrosis; otitis media; otitis external; HIV; psoriasis; eczema;
KW   human immunodeficiency virus; atopic dermatitis; muscular dystrophy;
KW   herpes; ulceration; sepsis; rheumatoid arthritis; periodontal disease;
KW   tumour metastasis; tumour angiogenesis; osteoporosis; Paget's disease;
KW   glomerulonephritis; scleroderma; hypertension.
XX
OS    Homo sapiens.
OS    Synthetic.
XX
FH   Key             Location/Qualifiers
FT   Region          2..108
FT                   /note= "Amino acids 1-107 of SLPI"
FT   Region          109
FT                   /note= "Linker amino acid"
FT   Region          110..503
FT                   /note= "Amino acids 1-394 of human AAT protein"
XX
PN   WO200250287-A2.
XX
PD   27-JUN-2002.
XX
PF   18-DEC-2001; 2001WO-US49256.
XX
PR   18-DEC-2000; 2000US-256699P.
PR   20-NOV-2001; 2001US-331966P.
XX
PA   (ARRI-) ARRIVA PHARM INC.
XX
PI   Barr PJ,  Gibson HL,  Pemberton P;
XX
DR   WPI; 2002-500631/53.
DR   N-PSDB; ABK88022.
XX
PT   Novel fusion protein useful for inhibiting protease activity associated
PT   with a disorder such as emphysema, asthma, comprises a first protease
PT   inhibitor comprising alpha 1-antitrypsin and a second protease
PT   inhibitor -
XX
PS   Example 1; Page 74-76; 134pp; English.
XX
CC   This invention relates to a novel fusion protein comprising a first
CC   protease inhibitor comprising an alphal-antitrypsin or its functionally
CC   active portion and a second protease inhibitor or its functionally
CC   active protein. The fusion proteins of the invention may act as an
CC   inhibitor of protease activity. The fusion protein of the invention
CC   is useful for inhibiting protease activity associated with a disorder
CC   such as emphysema, asthma, chronic obstructive pulmonary disease,
CC   cystic fibrosis, otitis media, otitis external or HIV infection, or
CC   for treating an individual suffering from or at risk for a disease or
CC   disorder involving unwanted protease activity. The proteins are useful
CC   for treating dermatological diseases such as atopic dermatitis, eczema
CC   and psoriasis, in inflammatory responses to viral infection, and for
CC   treating herpes infection, corneal or epidermal ulceration, chronic
CC   non-healing wounds, sepsis, rheumatoid arthritis, periodontal disease,
CC   tumour metastasis and tumour angiogenesis, gastric ulceration,
CC   osteoporosis, Paget's disease, glomerulonephritis, scleroderma, malaria,
CC   bacterial infection, Alzheimer's disease, hypertension and muscular
CC   dystrophy. The present sequence represents the SLAP1 fusion protein of
CC   the invention.
XX
SQ   Sequence   503 AA;

  Query Match             76.1%;  Score 2035;  DB 23;  Length 503;
  Best Local Similarity   100.0%;  Pred. No. 6.8e-150;
  Matches  395;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy       1 MEDPQGDAAQKTDTSHHDQDHPTFNKITPNLAEFAFSLYRQLAHQSNSTNIFFSPVSIAT 60
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db     109 MEDPQGDAAQKTDTSHHDQDHPTFNKITPNLAEFAFSLYRQLAHQSNSTNIFFSPVSIAT 168

Qy      61 AFAMLSLGTKADTHDEILEGLNFNLTEIPEAQIHEGFQELLRTLNQPDSQLQLTTGNGLF 120
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db     169 AFAMLSLGTKADTHDEILEGLNFNLTEIPEAQIHEGFQELLRTLNQPDSQLQLTTGNGLF 228

Qy     121 LSEGLKLVDKFLEDVKKLYHSEAFTVNFGDTEEAKKQINDYVEKGTQGKIVDLVKELDRD 180
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db     229 LSEGLKLVDKFLEDVKKLYHSEAFTVNFGDTEEAKKQINDYVEKGTQGKIVDLVKELDRD 288

Qy     181 TVFALVNYIFFKGKWERPFEVKDTEEEDFHVDQVTTVKVPMMKRLGMFNIQHCKKLSSWV 240
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db     289 TVFALVNYIFFKGKWERPFEVKDTEEEDFHVDQVTTVKVPMMKRLGMFNIQHCKKLSSWV 348

Qy     241 LLMKYLGNATAIFFLPDEGKLQHLENELTHDIITKFLENEDRRSASLHLPKLSITGTYDL 300
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db     349 LLMKYLGNATAIFFLPDEGKLQHLENELTHDIITKFLENEDRRSASLHLPKLSITGTYDL 408

Qy     301 KSVLGQLGITKVFSNGADLSGVTEEAPLKLSKAVHKAVLTIDEKGTEAAGAMFLEAIPMS 360
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db     409 KSVLGQLGITKVFSNGADLSGVTEEAPLKLSKAVHKAVLTIDEKGTEAAGAMFLEAIPMS 468

Qy     361 IPPEVKFNKPFVFLMIEQNTKSPLFMGKVVNPTQK 395
           |||||||||||||||||||||||||||||||||||
Db     469 IPPEVKFNKPFVFLMIEQNTKSPLFMGKVVNPTQK 503


RESULT 5
AAU99883
ID   AAU99883 standard; Protein; 522 AA.
XX
AC   AAU99883;
XX
DT   07-OCT-2002  (first entry)
XX
DE   NTAP1 fusion protein.
XX
KW   NTAP1; Alzheimer's disease; tumour angiogenesis;
KW   malaria; emphysema; asthma; chronic obstructive pulmonary disease;
KW   cystic fibrosis; otitis media; otitis external; HIV; psoriasis; eczema;
KW   human immunodeficiency virus; atopic dermatitis; muscular dystrophy;
KW   herpes; ulceration; sepsis; rheumatoid arthritis; periodontal disease;
KW   tumour metastasis; osteoporosis; Paget's disease; scleroderma;
KW   glomerulonephritis; hypertension.
XX
OS    Homo sapiens.
OS    Synthetic.
XX
FH   Key             Location/Qualifiers
FT   Region          2..127
FT                   /note= "Human TIMP-1 amino acids 1-184"
FT   Region          128
FT                   /note= "Linker methionine"
FT   Region          129..522
FT                   /note= "Amino acids 1-394 of human AAT"
XX
PN   WO200250287-A2.
XX
PD   27-JUN-2002.
XX
PF   18-DEC-2001; 2001WO-US49256.
XX
```

```
PR   18-DEC-2000; 2000US-256699P.
PR   20-NOV-2001; 2001US-331966P.
XX
PA   (ARRI-) ARRIVA PHARM INC.
XX
PI   Barr PJ,  Gibson HL,  Pemberton P;
XX
DR   WPI; 2002-500631/53.
DR   N-PSDB; ABK88024.
XX
PT   Novel fusion protein useful for inhibiting protease activity associated
PT   with a disorder such as emphysema, asthma, comprises a first protease
PT   inhibitor comprising alpha 1-antitrypsin and a second protease
PT   inhibitor -
XX
PS   Example 2; Page 87; 134pp; English.
XX
CC   This invention relates to a novel fusion protein comprising a first
CC   protease inhibitor comprising an alphal-antitrypsin or its functionally
CC   active portion and a second protease inhibitor or its functionally
CC   active protein. The fusion proteins of the invention may act as an
CC   inhibitor of protease activity. The fusion protein of the invention
CC   is useful for inhibiting protease activity associated with a disorder
CC   such as emphysema, asthma, chronic obstructive pulmonary disease,
CC   cystic fibrosis, otitis media, otitis external or HIV infection, or
CC   for treating an individual suffering from or at risk for a disease or
CC   disorder involving unwanted protease activity. The proteins are useful
CC   for treating dermatological diseases such as atopic dermatitis, eczema
CC   and psoriasis, in inflammatory responses to viral infection, and for
CC   treating herpes infection, corneal or epidermal ulceration, chronic
CC   non-healing wounds, sepsis, rheumatoid arthritis, periodontal disease,
CC   tumour metastasis and tumour angiogenesis, gastric ulceration,
CC   osteoporosis, Paget's disease, glomerulonephritis, scleroderma, malaria,
CC   bacterial infection, Alzheimer's disease, hypertension and muscular
CC   dystrophy. The present sequence represents the NTAP1 fusion protein of
CC   the invention.
XX
SQ   Sequence   522 AA;

  Query Match             76.1%;  Score 2035;  DB 23;  Length 522;
  Best Local Similarity   100.0%;  Pred. No. 7.2e-150;
  Matches  395;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy       1 MEDPQGDAAQKTDTSHHDQDHPTFNKITPNLAEFAFSLYRQLAHQSNSTNIFFSPVSIAT 60
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db     128 MEDPQGDAAQKTDTSHHDQDHPTFNKITPNLAEFAFSLYRQLAHQSNSTNIFFSPVSIAT 187

Qy      61 AFAMLSLGTKADTHDEILEGLNFNLTEIPEAQIHEGFQELLRTLNQPDSQLQLTTGNGLF 120
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db     188 AFAMLSLGTKADTHDEILEGLNFNLTEIPEAQIHEGFQELLRTLNQPDSQLQLTTGNGLF 247

Qy     121 LSEGLKLVDKFLEDVKKLYHSEAFTVNFGDTEEAKKQINDYVEKGTQGKIVDLVKELDRD 180
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db     248 LSEGLKLVDKFLEDVKKLYHSEAFTVNFGDTEEAKKQINDYVEKGTQGKIVDLVKELDRD 307

Qy     181 TVFALVNYIFFKGKWERPFEVKDTEEEDFHVDQVTTVKVPMMKRLGMFNIQHCKKLSSWV 240
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db     308 TVFALVNYIFFKGKWERPFEVKDTEEEDFHVDQVTTVKVPMMKRLGMFNIQHCKKLSSWV 367

Qy     241 LLMKYLGNATAIFFLPDEGKLQHLENELTHDIITKFLENEDRRSASLHLPKLSITGTYDL 300
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db     368 LLMKYLGNATAIFFLPDEGKLQHLENELTHDIITKFLENEDRRSASLHLPKLSITGTYDL 427

Qy     301 KSVLGQLGITKVFSNGADLSGVTEEAPLKLSKAVHKAVLTIDEKGTEAAGAMFLEAIPMS 360
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db     428 KSVLGQLGITKVFSNGADLSGVTEEAPLKLSKAVHKAVLTIDEKGTEAAGAMFLEAIPMS 487

Qy     361 IPPEVKFNKPFVFLMIEQNTKSPLFMGKVVNPTQK 395
           |||||||||||||||||||||||||||||||||||
Db     488 IPPEVKFNKPFVFLMIEQNTKSPLFMGKVVNPTQK 522


RESULT 6
AAU99882
ID   AAU99882 standard; Protein; 580 AA.
XX
AC   AAU99882;
XX
DT   07-OCT-2002  (first entry)
XX
DE   TAP1 fusion protein.
XX
KW   TAP1; Alzheimer's disease; tumour angiogenesis;
KW   malaria; emphysema; asthma; chronic obstructive pulmonary disease;
KW   cystic fibrosis; otitis media; otitis external; HIV; psoriasis; eczema;
KW   human immunodeficiency virus; atopic dermatitis; muscular dystrophy;
KW   herpes; ulceration; sepsis; rheumatoid arthritis; periodontal disease;
KW   tumour metastasis; osteoporosis; Paget's disease; scleroderma;
KW   glomerulonephritis; hypertension.
XX
OS    Homo sapiens.
OS    Synthetic.
XX
FH   Key             Location/Qualifiers
FT   Region          2..185
FT                   /note= "Human TIMP-1 amino acids 1-184"
FT   Region          186
FT                   /note= "Linker methionine"
FT   Region          187..580
FT                   /note= "Amino acids 1-394 of human AAT"
XX
PN   WO200250287-A2.
XX
PD   27-JUN-2002.
XX
PF   18-DEC-2001; 2001WO-US49256.
XX
PR   18-DEC-2000; 2000US-256699P.
PR   20-NOV-2001; 2001US-331966P.
XX
PA   (ARRI-) ARRIVA PHARM INC.
XX
PI   Barr PJ,  Gibson HL,  Pemberton P;
XX
DR   WPI; 2002-500631/53.
DR   N-PSDB; ABK88023.
XX
PT   Novel fusion protein useful for inhibiting protease activity associated
PT   with a disorder such as emphysema, asthma, comprises a first protease
PT   inhibitor comprising alpha 1-antitrypsin and a second protease
PT   inhibitor -
XX
PS   Example 1; Page 79-82; 134pp; English.
XX
CC   This invention relates to a novel fusion protein comprising a first
CC   protease inhibitor comprising an alphal-antitrypsin or its functionally
CC   active portion and a second protease inhibitor or its functionally
CC   active protein. The fusion proteins of the invention may act as an
CC   inhibitor of protease activity. The fusion protein of the invention
CC   is useful for inhibiting protease activity associated with a disorder
CC   such as emphysema, asthma, chronic obstructive pulmonary disease,
CC   cystic fibrosis, otitis media, otitis external or HIV infection, or
CC   for treating an individual suffering from or at risk for a disease or
CC   disorder involving unwanted protease activity. The proteins are useful
CC   for treating dermatological diseases such as atopic dermatitis, eczema
CC   and psoriasis, in inflammatory responses to viral infection, and for
CC   treating herpes infection, corneal or epidermal ulceration, chronic
CC   non-healing wounds, sepsis, rheumatoid arthritis, periodontal disease,
CC   tumour metastasis and tumour angiogenesis, gastric ulceration,
CC   osteoporosis, Paget's disease, glomerulonephritis, scleroderma, malaria,
CC   bacterial infection, Alzheimer's disease, hypertension and muscular
CC   dystrophy. The present sequence represents the TAP1 fusion protein of
CC   the invention.
XX
SQ   Sequence   580 AA;
```

```
  Query Match            76.1%;  Score 2035;  DB 23;  Length 580;
  Best Local Similarity  100.0%;  Pred. No. 8.3e-150;
  Matches  395;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy       1 MEDPQGDAAQKTDTSHHDQDHPTFNKITPNLAEFAFSLYRQLAHQSNSTNIFFSPVSIAT 60
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db     186 MEDPQGDAAQKTDTSHHDQDHPTFNKITPNLAEFAFSLYRQLAHQSNSTNIFFSPVSIAT 245

Qy      61 AFAMLSLGTKADTHDEILEGLNFNLTEIPEAQIHEGFQELLRTLNQPDSQLQLTTGNGLF 120
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db     246 AFAMLSLGTKADTHDEILEGLNFNLTEIPEAQIHEGFQELLRTLNQPDSQLQLTTGNGLF 305

Qy     121 LSEGLKLVDKFLEDVKKLYHSEAFTVNFGDTEEAKKQINDYVEKGTQGKIVDLVKELDRD 180
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db     306 LSEGLKLVDKFLEDVKKLYHSEAFTVNFGDTEEAKKQINDYVEKGTQGKIVDLVKELDRD 365

Qy     181 TVFALVNYIFFKGKWERPFEVKDTEEEDFHVDQVTTVKVPMMKRLGMFNIQHCKKLSSWV 240
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db     366 TVFALVNYIFFKGKWERPFEVKDTEEEDFHVDQVTTVKVPMMKRLGMFNIQHCKKLSSWV 425

Qy     241 LLMKYLGNATAIFFLPDEGKLQHLENELTHDIITKFLENEDRRSASLHLPKLSITGTYDL 300
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db     426 LLMKYLGNATAIFFLPDEGKLQHLENELTHDIITKFLENEDRRSASLHLPKLSITGTYDL 485

Qy     301 KSVLGQLGITKVFSNGADLSGVTEEAPLKLSKAVHKAVLTIDEKGTEAAGAMFLEAIPMS 360
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db     486 KSVLGQLGITKVFSNGADLSGVTEEAPLKLSKAVHKAVLTIDEKGTEAAGAMFLEAIPMS 545

Qy     361 IPPEVKFNKPFVFLMIEQNTKSPLFMGKVVNPTQK 395
           |||||||||||||||||||||||||||||||||||
Db     546 IPPEVKFNKPFVFLMIEQNTKSPLFMGKVVNPTQK 580


RESULT 7
AAW59839
ID   AAW59839 standard; Protein; 394 AA.
XX
AC   AAW59839;
XX
DT   20-NOV-1998  (first entry)
XX
DE   Mature protein sequence of alpha1-antitrypsin (AAT).
XX
KW   Protein expression; monocotyledon plant cell;
KW   glycosylated alpha 1-antitrypsin; AAT; glycosylated antithrombin III;
KW   ATIII; human serum albumin; HSA; subtilisin BPN'; treatment; emphysema;
KW   antithrombotic; blood replacement.
XX
OS   Homo sapiens.
XX
PN   WO9836085-A1.
XX
PD   20-AUG-1998.
XX
PF   13-FEB-1998;   98WO-US03068.
XX
PR   13-FEB-1997;   97US-0038170.
PR   13-FEB-1997;   97US-0037991.
PR   13-FEB-1997;   97US-0038168.
PR   13-FEB-1997;   97US-0038169.
XX
PA   (PHYT-) APPLIED PHYTOLOGICS INC.
XX
PI   Rodriguez RL,  Sutliff TD;
XX
DR   WPI; 1998-467179/40.
DR   N-PSDB; AAV41726.
XX
PT   Expressing mature, glycosylated proteins in monocotyledonous plant
PT   cells - from chimeric gene including signal peptide sequence,
PT   specifically therapeutic agents and industrial enzymes
XX
PS   Disclosure; Pages 28-29; 53pp; English.
XX
CC   The present sequence represents the mature protein of alpha1-antitrypsin
CC   (AAT). The protein is used to exemplify the invention. The specification
CC   describes a method for producing mature heterologous protein in
CC   monocotyledonous plant cells. The method comprises transforming the
CC   cells with a chimeric gene comprising a monocotyledon transcription
CC   regulator, inducible either during seed maturation or by adding/removing
CC   a small molecule, DNA encoding the heterologous protein, and DNA encoding
CC   a signal peptide, with the signal peptide causing secretion of the
CC   protein from the cell. Proteins expressed in this manner include mature
CC   glycosylated alpha 1-antitrypsin (AAT) with a glycosylation pattern that
CC   significantly increases its serum half-life, mature glycosylated
CC   antithrombin III (ATIII), mature human serum albumin (HSA) having the
CC   native folding pattern as shown by bilirubin-binding characteristics, or
CC   mature active subtilisin BPN'. These proteins are useful therapeutically
CC   (e.g. AAT for treating emphysema, ATIII as antithrombotic and HSA as
CC   blood replacement) or as industrial enzymes (BPN' is used in detergents).
XX
SQ   Sequence   394 AA;

  Query Match            75.9%;  Score 2030;  DB 19;  Length 394;
  Best Local Similarity  100.0%;  Pred. No. 1.2e-149;
  Matches  394;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy       2 EDPQGDAAQKTDTSHHDQDHPTFNKITPNLAEFAFSLYRQLAHQSNSTNIFFSPVSIATA 61
           |||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db       1 EDPQGDAAQKTDTSHHDQDHPTFNKITPNLAEFAFSLYRQLAHQSNSTNIFFSPVSIATA 60

Qy      62 FAMLSLGTKADTHDEILEGLNFNLTEIPEAQIHEGFQELLRTLNQPDSQLQLTTGNGLFL 121
           |||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db      61 FAMLSLGTKADTHDEILEGLNFNLTEIPEAQIHEGFQELLRTLNQPDSQLQLTTGNGLFL 120

Qy     122 SEGLKLVDKFLEDVKKLYHSEAFTVNFGDTEEAKKQINDYVEKGTQGKIVDLVKELDRDT 181
           |||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db     121 SEGLKLVDKFLEDVKKLYHSEAFTVNFGDTEEAKKQINDYVEKGTQGKIVDLVKELDRDT 180

Qy     182 VFALVNYIFFKGKWERPFEVKDTEEEDFHVDQVTTVKVPMMKRLGMFNIQHCKKLSSWVL 241
           |||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db     181 VFALVNYIFFKGKWERPFEVKDTEEEDFHVDQVTTVKVPMMKRLGMFNIQHCKKLSSWVL 240

Qy     242 LMKYLGNATAIFFLPDEGKLQHLENELTHDIITKFLENEDRRSASLHLPKLSITGTYDLK 301
           |||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db     241 LMKYLGNATAIFFLPDEGKLQHLENELTHDIITKFLENEDRRSASLHLPKLSITGTYDLK 300

Qy     302 SVLGQLGITKVFSNGADLSGVTEEAPLKLSKAVHKAVLTIDEKGTEAAGAMFLEAIPMSI 361
           |||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db     301 SVLGQLGITKVFSNGADLSGVTEEAPLKLSKAVHKAVLTIDEKGTEAAGAMFLEAIPMSI 360

Qy     362 PPEVKFNKPFVFLMIEQNTKSPLFMGKVVNPTQK 395
           |||||||||||||||||||||||||||||||||||
Db     361 PPEVKFNKPFVFLMIEQNTKSPLFMGKVVNPTQK 394


RESULT 8
AAU99873
ID   AAU99873 standard; Protein; 394 AA.
XX
AC   AAU99873;
XX
DT   07-OCT-2002  (first entry)
XX
DE   Human alpha-1-antitrypsin (AAT) protein.
XX
KW   Alpha-1-antitrypsin; AAT; human; protease inhibitor; malaria;
KW   emphysema; asthma; chronic obstructive pulmonary disease; eczema;
KW   cystic fibrosis; otitis media; otitis external; HIV; psoriasis;
KW   human immunodeficiency virus; atopic dermatitis; muscular dystrophy;
KW   herpes; ulceration; sepsis; rheumatoid arthritis; periodontal disease;
KW   tumour metastasis; tumour angiogenesis; osteoporosis; Paget's disease;
KW   glomerulonephritis; scleroderma; Alzheimer's disease; hypertension.
XX
OS   Homo sapiens.
XX
```

PN WO200250287-A2.
XX
PD 27-JUN-2002.
XX
PF 18-DEC-2001; 2001WO-US49256.
XX
PR 18-DEC-2000; 2000US-256699P.
PR 20-NOV-2001; 2001US-331966P.
XX
PA (ARRI-) ARRIVA PHARM INC.
XX
PI Barr PJ, Gibson HL, Pemberton P;
XX
DR WPI; 2002-500631/53.
DR N-PSDB; ABK88015.
XX
PT Novel fusion protein useful for inhibiting protease activity associated
PT with a disorder such as emphysema, asthma, comprises a first protease
PT inhibitor comprising alpha 1-antitrypsin and a second protease
PT inhibitor -
XX
PS Claim 25; Page 25-27; 134pp; English.
XX
CC This invention relates to a novel fusion protein comprising a first
CC protease inhibitor comprising an alphal-antitrypsin or its functionally
CC active portion and a second protease inhibitor or its functionally
CC active protein. The fusion proteins of the invention may act as an
CC inhibitor of protease activity. The fusion protein of the invention
CC is useful for inhibiting protease activity associated with a disorder
CC such as emphysema, asthma, chronic obstructive pulmonary disease,
CC cystic fibrosis, otitis media, otitis external or HIV infection, or
CC for treating an individual suffering from or at risk for a disease or
CC disorder involving unwanted protease activity. The proteins are useful
CC for treating dermatological diseases such as atopic dermatitis, eczema
CC and psoriasis, in inflammatory responses to viral infection, and for
CC treating herpes infection, corneal or epidermal ulceration, chronic
CC non-healing wounds, sepsis, rheumatoid arthritis, periodontal disease,
CC tumour metastasis and tumour angiogenesis, gastric ulceration,
CC osteoporosis, Paget's disease, glomerulonephritis, scleroderma, malaria,
CC bacterial infection, Alzheimer's disease, hypertension and muscular
CC dystrophy. The present sequence represents the human alpha-1-antitrypsin
CC (AAT) protein used to create the fusion protein of the invention.
XX
SQ Sequence 394 AA;

Query Match 75.9%; Score 2030; DB 23; Length 394;
Best Local Similarity 100.0%; Pred. No. 1.2e-149;
Matches 394; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

```
Qy       2 EDPQGDAAQKTDTSHHDQDHPTFNKITPNLAEFAFSLYRQLAHQSNSTNIFFSPVSIATA 61
          ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db       1 EDPQGDAAQKTDTSHHDQDHPTFNKITPNLAEFAFSLYRQLAHQSNSTNIFFSPVSIATA 60

Qy      62 FAMLSLGTKADTHDEILEGLNFNLTEIPEAQIHEGFQELLRTLNQPDSQLQLTTGNGLFL 121
          ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db      61 FAMLSLGTKADTHDEILEGLNFNLTEIPEAQIHEGFQELLRTLNQPDSQLQLTTGNGLFL 120

Qy     122 SEGLKLVDKFLEDVKKLYHSEAFTVNFGDTEEAKKQINDYVEKGTQGKIVDLVKELDRDT 181
          ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db     121 SEGLKLVDKFLEDVKKLYHSEAFTVNFGDTEEAKKQINDYVEKGTQGKIVDLVKELDRDT 180

Qy     182 VFALVNYIFFKGKWERPFEVKDTEEEDFHVDQVTTVKVPMMKRLGMFNIQHCKKLSSWVL 241
          ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db     181 VFALVNYIFFKGKWERPFEVKDTEEEDFHVDQVTTVKVPMMKRLGMFNIQHCKKLSSWVL 240

Qy     242 LMKYLGNATAIFFLPDEGKLQHLENELTHDIITKFLENEDRRSASLHLPKLSITGTYDLK 301
          ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db     241 LMKYLGNATAIFFLPDEGKLQHLENELTHDIITKFLENEDRRSASLHLPKLSITGTYDLK 300

Qy     302 SVLGQLGITKVFSNGADLSGVTEEAPLKLSKAVHKAVLTIDEKGTEAAGAMFLEAIPMSI 361
          ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db     301 SVLGQLGITKVFSNGADLSGVTEEAPLKLSKAVHKAVLTIDEKGTEAAGAMFLEAIPMSI 360

Qy     362 PPEVKFNKPFVFLMIEQNTKSPLFMGKVVNPTQK 395
          |||||||||||||||||||||||||||||||||||
Db     361 PPEVKFNKPFVFLMIEQNTKSPLFMGKVVNPTQK 394
```

RESULT 9
AAP40133
ID AAP40133 standard; Protein; 418 AA.
XX
AC AAP40133;
XX
DT 16-FEB-1992 (first entry)
XX
DE Sequence of human alpha-1-antitrypsin.
XX
KW Protease inhibitor; enzyme; proteolysis inhibitor; emphysema;
KW therapy.
XX
OS Homo sapiens.
XX
FH Key Location/Qualifiers
FT Peptide 1..24
FT /label= signal
FT Region 25..418
XX
PN EP103409-A.
XX
PD 21-MAR-1984.
XX
PF 12-AUG-1983; 83EP-0304668.
XX
PR 28-APR-1983; 83US-0489406.
PR 13-AUG-1982; 82US-0408099.
PR 18-AUG-1982; 82US-0409183.
PR 01-JAN-1988; 88EP-0201179.
XX
PA (ZYMO-) ZYMOS CORP.
PA (BRIG-) BRIGHAM & WOMENS HO.
PA (KAWA/) KAWASAKI.
XX
PI Kawasaki GH, Woodbury RG;
XX
DR WPI; 1984-077108/13.
DR N-PSDB; AAN40078.
XX
PT Extra:chromosomal element for replication in yeast - with yeast
PT promoter for regulation of glycolytic protein prodn.
XX
PS Disclosure; Fig 1A; 48pp; English.
XX
CC The inventors claim a DNA construct contg. a gene encoding human
CC alpha-1-antitrypsin. A substantially pure, substantially
CC unglycosylated mammalian alpha-1-antitrypsin is also claimed.
XX
SQ Sequence 418 AA;

Query Match 75.9%; Score 2030; DB 5; Length 418;
Best Local Similarity 100.0%; Pred. No. 1.3e-149;
Matches 394; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

```
Qy       2 EDPQGDAAQKTDTSHHDQDHPTFNKITPNLAEFAFSLYRQLAHQSNSTNIFFSPVSIATA 61
          ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db      25 EDPQGDAAQKTDTSHHDQDHPTFNKITPNLAEFAFSLYRQLAHQSNSTNIFFSPVSIATA 84

Qy      62 FAMLSLGTKADTHDEILEGLNFNLTEIPEAQIHEGFQELLRTLNQPDSQLQLTTGNGLFL 121
          ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db      85 FAMLSLGTKADTHDEILEGLNFNLTEIPEAQIHEGFQELLRTLNQPDSQLQLTTGNGLFL 144

Qy     122 SEGLKLVDKFLEDVKKLYHSEAFTVNFGDTEEAKKQINDYVEKGTQGKIVDLVKELDRDT 181
          ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db     145 SEGLKLVDKFLEDVKKLYHSEAFTVNFGDTEEAKKQINDYVEKGTQGKIVDLVKELDRDT 204

Qy     182 VFALVNYIFFKGKWERPFEVKDTEEEDFHVDQVTTVKVPMMKRLGMFNIQHCKKLSSWVL 241
```

```
                ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db    205 VFALVNYIFFKGKWERPFEVKDTEEEDFHVDQVTTVKVPMMKRLGMFNIQHCKKLSSWVL 264

Qy    242 LMKYLGNATAIFFLPDEGKLQHLENELTHDIITKFLENEDRRSASLHLPKLSITGTYDLK 301
                ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db    265 LMKYLGNATAIFFLPDEGKLQHLENELTHDIITKFLENEDRRSASLHLPKLSITGTYDLK 324

Qy    302 SVLGQLGITKVFSNGADLSGVTEEAPLKLSKAVHKAVLTIDEKGTEAAGAMFLEAIPMSI 361
                ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db    325 SVLGQLGITKVFSNGADLSGVTEEAPLKLSKAVHKAVLTIDEKGTEAAGAMFLEAIPMSI 384

Qy    362 PPEVKFNKPFVFLMIEQNTKSPLFMGKVVNPTQK 395
                ||||||||||||||||||||||||||||||||
Db    385 PPEVKFNKPFVFLMIEQNTKSPLFMGKVVNPTQK 418
```

RESULT 10
AAP94664
ID AAP94664 standard; protein; 418 AA.
XX
AC AAP94664;
XX
DT 28-JUN-1990 (first entry)
XX
DE Predominant form of human alpha-1-antitrypsin as encoded by cDNA.
XX
KW Human alpha-1-trypsin (hAT); anti-AT antibodies; proteolytic activity;
KW AT deficiency; Saccharomyces cerevisiae GK 100; 2-mu plasmid DNA; CATI;
KW plasmid HAT4; yeast TPI promoter; yeast TPI terminator;
KW plasmid C1/1.
XX
OS Homo sapiens.
XX
FH Key Location/Qualifiers
FT Peptide 1..118
FT Protein 119..418
XX
PN EP304971-A.
XX
PD 01-MAR-1989.
XX
PF 12-AUG-1983; 83EP-0201179.
XX
PR 13-AUG-1982; 82EP-0201179, US-408099.
XX
PA (ZYMO ) ZYMOGENETICS INC.
XX
PI Kawasaki GH, Woodbury RG;
XX
DR WPI; 1989-062651/09.
DR N-PSDB; AAN91077.
XX
PT New alpha-1-antitrypsin polypeptide(s) -
PT produced by recombinant DNA techniques esp. using yeast host
XX
PS Disclosure; ; 28pp; English.
XX
CC New in the patent are unglycosylated polypeptides having the amino acid
CC sequence of a mammalian alpha-1-antitrypsin (AT). Also claimed is the
CC prodn. of polypeptides having the protease-inhibiting activity of a
CC mammalian AT. A culture of microorganisms is grown such as fungi or
CC yeast, esp. Saccharomyces cerevisiae GK 100, which are transformed with
CC a DNA transfer vector 2-mu plasmid, plasmid CATI or plasmid HAT4, contg.
CC a segment encoding the mammalian AT. The unglycosylated polypeptides are
CC useful for prodn. of anti-AT antibodies, for modulating proteolytic
CC activity in mammals, and for treating AT deficiency, esp. for replacing
CC AT which has been inactivated (oxidised) by tobacco or other smoke. In
CC the given example plasmid HAT4 comprises the yeast promoter, an
CC ATGGAGGATCC adapter, the hAT gene and the yeast TPI terminator inserted
CC into plasmid C1/1, which contains the entire 2-mu DNA from S. cerevisiae.
CC S. cerevisiae GK100 transformed with HAT4 produces soluble protein with
CC an hAT content of 2-3% when grown on a medium contg. 6% glucose.
XX

SQ Sequence 418 AA;

Query Match 75.9%; Score 2030; DB 10; Length 418;
Best Local Similarity 100.0%; Pred. No. 1.3e-149;
Matches 394; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

```
Qy      2 EDPQGDAAQKTDTSHHDQDHPTFNKITPNLAEFAFSLYRQLAHQSNSTNIFFSPVSIATA 61
          ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db     25 EDPQGDAAQKTDTSHHDQDHPTFNKITPNLAEFAFSLYRQLAHQSNSTNIFFSPVSIATA 84

Qy     62 FAMLSLGTKADTHDEILEGLNFNLTEIPEAQIHEGFQELLRTLNQPDSQLQLTTGNGLFL 121
          ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db     85 FAMLSLGTKADTHDEILEGLNFNLTEIPEAQIHEGFQELLRTLNQPDSQLQLTTGNGLFL 144

Qy    122 SEGLKLVDKFLEDVKKLYHSEAFTVNFGDTEEAKKQINDYVEKGTQGKIVDLVKELDRDT 181
          ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db    145 SEGLKLVDKFLEDVKKLYHSEAFTVNFGDTEEAKKQINDYVEKGTQGKIVDLVKELDRDT 204

Qy    182 VFALVNYIFFKGKWERPFEVKDTEEEDFHVDQVTTVKVPMMKRLGMFNIQHCKKLSSWVL 241
          ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db    205 VFALVNYIFFKGKWERPFEVKDTEEEDFHVDQVTTVKVPMMKRLGMFNIQHCKKLSSWVL 264

Qy    242 LMKYLGNATAIFFLPDEGKLQHLENELTHDIITKFLENEDRRSASLHLPKLSITGTYDLK 301
          ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db    265 LMKYLGNATAIFFLPDEGKLQHLENELTHDIITKFLENEDRRSASLHLPKLSITGTYDLK 324

Qy    302 SVLGQLGITKVFSNGADLSGVTEEAPLKLSKAVHKAVLTIDEKGTEAAGAMFLEAIPMSI 361
          ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db    325 SVLGQLGITKVFSNGADLSGVTEEAPLKLSKAVHKAVLTIDEKGTEAAGAMFLEAIPMSI 384

Qy    362 PPEVKFNKPFVFLMIEQNTKSPLFMGKVVNPTQK 395
          ||||||||||||||||||||||||||||||||||
Db    385 PPEVKFNKPFVFLMIEQNTKSPLFMGKVVNPTQK 418.
```

RESULT 11
AAY26925
ID AAY26925 standard; Protein; 418 AA.
XX
AC AAY26925;
XX
DT 21-DEC-1999 (first entry)
XX
DE Human alpha1-anti-trypsin type M1 protein.
XX
KW Human; alpha-1-anti-trypsin; transgenic plant; monocotyledon; variant;
KW glycosylation; serine protease; inhibitor; neutrophil; elastase; trypsin;
KW cathepsin G; thrombin; pulmonary tissue; protease damage; septic shock;
KW pulmonary emphysema; cystic fibrosis; rheumatism; recombinant;
KW virus contamination; immunogenicity; ss.
XX
OS Homo sapiens.
XX
FH Key Location/Qualifiers
FT Peptide 1..24
FT /label= signal_peptide
FT Protein 25..418
FT /label= mature protein
FT Modified-site 70
FT /note= "putative glycosylation site"
FT Modified-site 107
FT Modified-site 271
FT Active-site 382..387
FT /note= "putative active site"
XX
PN WO9938987-A1.
XX
PD 05-AUG-1999.
XX
PF 29-JAN-1999; 99WO-FR00195.
XX
PR 30-JAN-1998; 98FR-0001089.
XX

```
PA   (MERI-) MERISTEM THERAPEUTICS.
XX
PI   Gruber V,  Olagnier B,  Bournat P,  Theisen M,  Merot B;
XX
DR   WPI; 1999-469334/39.
DR   N-PSDB; AAX83548.
XX
PT   Production of alpha1-antitrypsin, and its variants, in cells of
PT   monocotyledonous plants, useful as serine protease inhibitors for
PT   therapy, e.g. of emphysema, in cosmetics and as reagents  -
XX
PS   Claim 8; Fig 1; 67pp; French.
XX
CC   This sequence represents the coding region of the human alpha-1-anti-
CC   trypsin (AT) gene. The invention relates to the production of AT in plant
CC   cells, especially monocotyledonous plants.  Also produced are variants of
CC   the AT protein, in which the glycosylation pattern of the protein is
CC   altered.  AT inhibits serine proteases, specifically neutrophil elastase
CC   (but also trypsin, cathepsin G, thrombin etc.) so protect pulmonary
CC   tissue against protease damage. AT are used to treat AT-deficiency
CC   conditions, particularly pulmonary emphysema, cystic fibrosis, septic
CC   shock and rheumatism. The use of plants for the recombinant production
CC   of AT results in a product without risk of (sub)viral contamination. The
CC   recombinant AT had good activity and is stable, with low immunogenicity
CC   (associated with glycosylation patterns similar to the native protein).
XX
SQ   Sequence   418 AA;

  Query Match             75.9%;  Score 2030;  DB 20;  Length 418;
  Best Local Similarity   100.0%;  Pred. No. 1.3e-149;
  Matches  394;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy       2 EDPQGDAAQKTDTSHHDQDHPTFNKITPNLAEFAFSLYRQLAHQSNSTNIFFSPVSIATA 61
          ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db      25 EDPQGDAAQKTDTSHHDQDHPTFNKITPNLAEFAFSLYRQLAHQSNSTNIFFSPVSIATA 84

Qy      62 FAMLSLGTKADTHDEILEGLNFNLTEIPEAQIHEGFQELLRTLNQPDSQLQLTTGNGLFL 121
          ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db      85 FAMLSLGTKADTHDEILEGLNFNLTEIPEAQIHEGFQELLRTLNQPDSQLQLTTGNGLFL 144

Qy     122 SEGLKLVDKFLEDVKKLYHSEAFTVNFGDTEEAKKQINDYVEKGTQGKIVDLVKELDRDT 181
          ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db     145 SEGLKLVDKFLEDVKKLYHSEAFTVNFGDTEEAKKQINDYVEKGTQGKIVDLVKELDRDT 204

Qy     182 VFALVNYIFFKGKWERPFEVKDTEEEDFHVDQVTTVKVPMMKRLGMFNIQHCKKLSSWVL 241
          ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db     205 VFALVNYIFFKGKWERPFEVKDTEEEDFHVDQVTTVKVPMMKRLGMFNIQHCKKLSSWVL 264

Qy     242 LMKYLGNATAIFFLPDEGKLQHLENELTHDIITKFLENEDRRSASLHLPKLSITGTYDLK 301
          ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db     265 LMKYLGNATAIFFLPDEGKLQHLENELTHDIITKFLENEDRRSASLHLPKLSITGTYDLK 324

Qy     302 SVLGQLGITKVFSNGADLSGVTEEAPLKLSKAVHKAVLTIDEKGTEAAGAMFLEAIPMSI 361
          ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db     325 SVLGQLGITKVFSNGADLSGVTEEAPLKLSKAVHKAVLTIDEKGTEAAGAMFLEAIPMSI 384

Qy     362 PPEVKFNKPFVFLMIEQNTKSPLFMGKVVNPTQK 395
          |||||||||||||||||||||||||||||||||||
Db     385 PPEVKFNKPFVFLMIEQNTKSPLFMGKVVNPTQK 418


RESULT 12
AAR20802
ID   AAR20802 standard; Protein; 393 AA.
XX
AC   AAR20802;
XX
DT   26-MAY-1992  (first entry)
XX
DE   Alpha-1-antitrypsin from pDBUA1.
XX
KW   Antitrypsin; uPA; urokinase; receptor; alpha1AT; alpha1AT-P;
KW   inhibition; growth factor domain.
XX
FH   Key             Location/Qualifiers
FT   Misc-difference 357
FT                   /note= "Met changed to Arg for alpha1AT-P; see CC"
XX
PN   GB2246779-A.
XX
PD   12-FEB-1992.
XX
PF   03-AUG-1990;   90GB-0017083.
XX
PR   03-AUG-1990;   90GB-0017083.
XX
PA   (DELT-) DELTA BIOTECH LTD.
XX
PI   Ballance DJ,  Courtney MG;
XX
DR   WPI; 1992-051155/07.
DR   N-PSDB; AAQ21125.
XX
PT   Antitumour molecules for treatment of neoplasms - comprises first
PT   region for binding to uPA receptor and second region for uPA
PT   inhibition
XX
PS   Disclosure; Fig 12; 57pp; English.
XX
CC   A human alpha1-antitrypsin cDNA was modified to remove the 23
CC   amino acid signal sequence and introduce a HindIII restriction site
CC   at the 3' end.  The modified cDNA was cloned into M13mp19 to
CC   generate pDBA1. This sequence was then used to create alpha1-AT
CC   Pittsburgh (pDBA2 - see AAQ21123-24), i.e. changing the codon for
CC   methionine 358 (357 in the sequence below) (ATG) such that it codes
CC   for arginine (AGG).
CC   See also AAQ21117-19 and AAQ21121-25.
XX
SQ   Sequence   393 AA;

  Query Match             75.6%;  Score 2022;  DB 13;  Length 393;
  Best Local Similarity   99.7%;  Pred. No. 5e-149;
  Matches  392;  Conservative    1;  Mismatches    0;  Indels    0;  Gaps    0;

Qy       3 DPQGDAAQKTDTSHHDQDHPTFNKITPNLAEFAFSLYRQLAHQSNSTNIFFSPVSIATAF 62
          ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db       1 DPQGDAAQKTDTSHHDQDHPTFNKITPNLAEFAFSLYRQLAHQSNSTNIFFSPVSIATAF 60

Qy      63 AMLSLGTKADTHDEILEGLNFNLTEIPEAQIHEGFQELLRTLNQPDSQLQLTTGNGLFLS 122
          ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db      61 AMLSLGTKADTHDEILEGLNFNLTEIPEAQIHEGFQELLRTLNQPDSQLQLTTGNGLFLS 120

Qy     123 EGLKLVDKFLEDVKKLYHSEAFTVNFGDTEEAKKQINDYVEKGTQGKIVDLVKELDRDTV 182
          ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db     121 EGLKLVDKFLEDVKKLYHSEAFTVNFGDTEEAKKQINDYVEKGTQGKIVDLVKELDRDTV 180

Qy     183 FALVNYIFFKGKWERPFEVKDTEEEDFHVDQVTTVKVPMMKRLGMFNIQHCKKLSSWVLL 242
          ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db     181 FALVNYIFFKGKWERPFEVKDTEEEDFHVDQVTTVKVPMMKRLGMFNIQHCKKLSSWVLL 240

Qy     243 MKYLGNATAIFFLPDEGKLQHLENELTHDIITKFLENEDRRSASLHLPKLSITGTYDLKS 302
          ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db     241 MKYLGNATAIFFLPDEGKLQHLENELTHDIITKFLENEDRRSASLHLPKLSITGTYDLKS 300

Qy     303 VLGQLGITKVFSNGADLSGVTEEAPLKLSKAVHKAVLTIDEKGTEAAGAMFLEAIPMSIP 362
          ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db     301 VLGQLGITKVFSNGADLSGVTEEAPLKLSKAVHKAVLTIDEKGTEAAGAMFLEAIPMSIP 360

Qy     363 PEVKFNKPFVFLMIEQNTKSPLFMGKVVNPTQK 395
          |:|||||||||||||||||||||||||||||||||
Db     361 PDVKFNKPFVFLMIEQNTKSPLFMGKVVNPTQK 393


RESULT 13
AAR71969
ID   AAR71969 standard; Protein; 418 AA.
```

```
XX
AC   AAR71969;
XX
DT   18-OCT-1995  (first entry)
XX
DE   Human alpha-1-trypsin.
XX
KW   Alpha-1-trypsin; protease-inhibitor.
XX
OS   Homo sapiens.
XX
FH   Key             Location/Qualifiers
FT   Peptide         1..24
FT                   /label= Sig_peptide
XX
PN   US5399684-A.
XX
PD   21-MAR-1995.
XX
PF   20-MAY-1982;   82US-0380310.
XX
PR   20-MAY-1982;   82US-0380310.
PR   07-FEB-1984;   84US-0638980.
PR   03-MAR-1987;   87US-0022543.
PR   15-DEC-1987;   87US-0133190.
PR   16-SEP-1988;   88US-0246912.
PR   22-AUG-1989;   89US-0398288.
PR   11-MAR-1991;   91US-0666450.
PR   18-NOV-1992;   92US-0979556.
PR   02-JUL-1993;   93US-0086442.
XX
PA   (WASH-) WASHINGTON RES FOUND.
XX
PI   Davie EW,  Kurachi K,  Thirumalachary C,  Woo SLC;
XX
DR   WPI; 1995-130740/17.
DR   N-PSDB; AAQ89254.
XX
PT   Human alpha1-antitrypsin (a1-AT) cDNA sequence - can be used for
PT   the expression of a1-AT
XX
PS   Disclosure; Fig.1; 15pp; English.
XX
CC   The sequence of human alpha-1-antitrypsin encoded by an isolated
CC   cDNA clone is given in AAR71969.  Expression of the cDNA in host cell
CC   transformants allowed production of recombinant alpha-1-antitrypsin.
XX
SQ   Sequence   418 AA;

  Query Match             75.6%;  Score 2021;  DB 16;  Length 418;
  Best Local Similarity   99.7%;  Pred. No. 6.5e-149;
  Matches  393;  Conservative    0;  Mismatches    1;  Indels    0;  Gaps    0;

Qy       2 EDPQGDAAQKTDTSHHDQDHPTFNKITPNLAEFAFSLYRQLAHQSNSTNIFFSPVSIATA 61
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db      25 EDPQGDAAQKTDTSHHDQDHPTFNKITPNLAEFAFSLYRQLAHQSNSTNIFFSPVSIATA 84

Qy      62 FAMLSLGTKADTHDEILEGLNFNLTEIPEAQIHEGFQELLRTLNQPDSQLQLTTGNGLFL 121
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db      85 FAMLSLGTKADTHDEILEGLNFNLTEIPEAQIHEGFQELLRTLNQPDSQLQLTTGNGLFL 144

Qy     122 SEGLKLVDKFLEDVKKLYHSEAFTVNFGDTEEAKKQINDYVEKGTQGKIVDLVKELDRDT 181
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db     145 SEGLKLVDKFLEDVKKLYHSEAFTVNFGDTEEAKKQINDYVEKGTQGKIVDLVKELDRDT 204

Qy     182 VFALVNYIFFKGKWERPFEVKDTEEEDFHVDQVTTVKVPMMKRLGMFNIQHCKKLSSWVL 241
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db     205 VFALVNYIFFKGKWERPFEVKDTEEEDFHVDQVTTVKVPMMKRLGMFNIQHCKKLSSWVL 264

Qy     242 LMKYLGNATAIFFLPDEGKLQHLENELTHDIITKFLENEDRRSASLHLPKLSITGTYDLK 301
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db     265 LMKYLGNATAIFFLPDEGKLQHLENELTHDIITKFLENEDRRSASLHLPKLSITGTYDLK 324

Qy     302 SVLGQLGITKVFSNGADLSGVTEEAPLKLSKAVHKAVLTIDEKGTEAAGAMFLEAIPMSI 361
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db     325 SVLGQLGITKVFSNGADLSGVTEEAPLKLSKAVHKAVLTIDEKGTEAAGAMFLEAIPMSI 384

Qy     362 PPEVKFNKPFVFLMIEQNTKSPLFMGKVVNPTQK 395
           |||||||||||||||||||||||||||||||||||
Db     385 RPEVKFNKPFVFLMIEQNTKSPLFMGKVVNPTQK 418


RESULT 14
AAW56709
ID   AAW56709 standard; Protein; 418 AA.
XX
AC   AAW56709;
XX
DT   21-AUG-1998  (first entry)
XX
DE   Amino acid sequence of the alpha-1-antitrypsin.
XX
KW   Human alpha-1-antitrypsin; ATR-1; antibody; ATR-1 deficiency.
XX
OS   Homo sapiens.
XX
PN   US5736379-A.
XX
PD   07-APR-1998.
XX
PF   07-JUN-1995;   95US-0479545.
XX
PR   20-MAY-1982;   82US-0380310.
PR   07-FEB-1984;   84US-0638980.
PR   03-MAR-1987;   87US-0022543.
PR   15-DEC-1987;   87US-0133190.
PR   16-SEP-1988;   88US-0246912.
PR   22-AUG-1989;   89US-0398288.
PR   11-MAR-1991;   91US-0666450.
PR   18-NOV-1992;   92US-0979556.
PR   02-JUL-1993;   93US-0086442.
PR   12-DEC-1994;   94US-0361689.
XX
PA   (WASH-) WASHINGTON RES FOUND.
XX
PI   Davie EW,  Kurachi K,  Thirumalachary C,  Woo SLC;
XX
DR   WPI; 1998-239214/21.
DR   N-PSDB; AAV28471.
XX
PT   DNA encoding alpha-1 anti-trypsin - useful for, e.g. producing
PT   recombinant alpha-1 anti-trypsin
XX
PS   Claim 1; Fig 1; 15pp; English.
XX
CC   This is the amino acid sequence of the novel human alpha-1-antitrypsin
CC   (ATR-1) protein.  Its products are useful for producing recombinant
CC   ATR-1 polypeptides, which can be used to prepare antibodies for
CC   detecting ATR-1 variants in the blood, as ligands in assays for ATR-1,
CC   and to treat ATR-1 deficiency.
XX
SQ   Sequence   418 AA;

  Query Match             75.6%;  Score 2021;  DB 19;  Length 418;
  Best Local Similarity   99.7%;  Pred. No. 6.5e-149;
  Matches  393;  Conservative    0;  Mismatches    1;  Indels    0;  Gaps    0;

Qy       2 EDPQGDAAQKTDTSHHDQDHPTFNKITPNLAEFAFSLYRQLAHQSNSTNIFFSPVSIATA 61
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db      25 EDPQGDAAQKTDTSHHDQDHPTFNKITPNLAEFAFSLYRQLAHQSNSTNIFFSPVSIATA 84

Qy      62 FAMLSLGTKADTHDEILEGLNFNLTEIPEAQIHEGFQELLRTLNQPDSQLQLTTGNGLFL 121
           ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db      85 FAMLSLGTKADTHDEILEGLNFNLTEIPEAQIHEGFQELLRTLNQPDSQLQLTTGNGLFL 144

Qy     122 SEGLKLVDKFLEDVKKLYHSEAFTVNFGDTEEAKKQINDYVEKGTQGKIVDLVKELDRDT 181
```

```
                ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db    145 SEGLKLVDKFLEDVKKLYHSEAFTVNFGDTEEAKKQINDYVEKGTQGKIVDLVKELDRDT 204

Qy    182 VFALVNYIFFKGKWERPFEVKDTEEEDFHVDQVTTVKVPMMKRLGMFNIQHCKKLSSWVL 241
                ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db    205 VFALVNYIFFKGKWERPFEVKDTEEEDFHVDQVTTVKVPMMKRLGMFNIQHCKKLSSWVL 264

Qy    242 LMKYLGNATAIFFLPDEGKLQHLENELTHDIITKFLENEDRRSASLHLPKLSITGTYDLK 301
                ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db    265 LMKYLGNATAIFFLPDEGKLQHLENELTHDIITKFLENEDRRSASLHLPKLSITGTYDLK 324

Qy    302 SVLGQLGITKVFSNGADLSGVTEEAPLKLSKAVHKAVLTIDEKGTEAAGAMFLEAIPMSI 361
                ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db    325 SVLGQLGITKVFSNGADLSGVTEEAPLKLSKAVHKAVLTIDEKGTEAAGAMFLEAIPMSI 384

Qy    362 PPEVKFNKPFVFLMIEQNTKSPLFMGKVVNPTQK 395
                ||||||||||||||||||||||||||||||||
Db    385 RPEVKFNKPFVFLMIEQNTKSPLFMGKVVNPTQK 418
```

RESULT 15
AAY78890
ID  AAY78890 standard; Protein; 418 AA.
XX
AC  AAY78890;
XX
DT  19-MAY-2000  (first entry)
XX
DE  Human alpha1-antitrypsin amino acid sequence.
XX
KW  Alpha1-antitrypsin; neutrophil elastase inhibitor; human;
KW  chronic obstructive pulmonary emphysema; infantile liver cirrhosis.
XX
OS  Homo sapiens.
XX
PN  US6025161-A.
XX
PD  15-FEB-2000.
XX
PF  20-JAN-1998;  98US-0009581.
XX
PR  07-JUN-1995;  95US-0479545.
PR  20-MAY-1982;  82US-0380810.
PR  07-FEB-1984;  84US-0638980.
PR  03-MAR-1987;  87US-0022543.
PR  15-DEC-1987;  87US-0133190.
PR  16-SEP-1988;  88US-0246912.
PR  22-AUG-1989;  89US-0398288.
PR  11-MAR-1991;  91US-0666450.
PR  18-NOV-1992;  92US-0979556.
PR  02-JUL-1993;  93US-0086442.
XX
PA  (WASH-) WASHINGTON RES FOUND.
XX
PI  Woo SLC, Thirumalachary C, Kurachi K, Davie EW;
XX
DR  WPI; 2000-181811/16.
DR  N-PSDB; AAZ90199.
XX
PT  Preparing alpha1-antitrypsin for inhibiting neutrophil elastase
PT  involves transfecting host cell with vector comprising
PT  alpha1-antitrypsin DNA sequence that hybridizes to human
PT  alpha1-antitrypsin cDNA, or its complement -
XX
PS  Claim 1; Fig 1; 16pp; English.
XX
CC  This sequence represents the human alpha1-antitrypsin amino acid
CC  sequence. Alpha1-antitrypsin is an important protease inhibitor, the
CC  major function of which is to inhibit neutrophil elastase. Low levels of
CC  alpha1-antitrypsin in the blood are associated with chronic obstructive
CC  pulmonary emphysema and infantile liver cirrhosis. A vector comprising a
CC  mammalian alpha1-antitrypsin DNA sequence that hybridises to human
CC  alpha1-antitrypsin cDNA can be introduced into a host cell in a method
CC  for the production of alpha1-antitrypsin.
XX
SQ  Sequence  418 AA;

  Query Match            75.6%;  Score 2021;  DB 21;  Length 418;
  Best Local Similarity  99.7%;  Pred. No. 6.5e-149;
  Matches  393;  Conservative    0;  Mismatches    1;  Indels    0;  Gaps    0;

```
Qy      2 EDPQGDAAQKTDTSHHDQDHPTFNKITPNLAEFAFSLYRQLAHQSNSTNIFFSPVSIATA 61
          ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db     25 EDPQGDAAQKTDTSHHDQDHPTFNKITPNLAEFAFSLYRQLAHQSNSTNIFFSPVSIATA 84

Qy     62 FAMLSLGTKADTHDEILEGLNFNLTEIPEAQIHEGFQELLRTLNQPDSQLQLTTGNGLFL 121
          ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db     85 FAMLSLGTKADTHDEILEGLNFNLTEIPEAQIHEGFQELLRTLNQPDSQLQLTTGNGLFL 144

Qy    122 SEGLKLVDKFLEDVKKLYHSEAFTVNFGDTEEAKKQINDYVEKGTQGKIVDLVKELDRDT 181
          ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db    145 SEGLKLVDKFLEDVKKLYHSEAFTVNFGDTEEAKKQINDYVEKGTQGKIVDLVKELDRDT 204

Qy    182 VFALVNYIFFKGKWERPFEVKDTEEEDFHVDQVTTVKVPMMKRLGMFNIQHCKKLSSWVL 241
          ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db    205 VFALVNYIFFKGKWERPFEVKDTEEEDFHVDQVTTVKVPMMKRLGMFNIQHCKKLSSWVL 264

Qy    242 LMKYLGNATAIFFLPDEGKLQHLENELTHDIITKFLENEDRRSASLHLPKLSITGTYDLK 301
          ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db    265 LMKYLGNATAIFFLPDEGKLQHLENELTHDIITKFLENEDRRSASLHLPKLSITGTYDLK 324

Qy    302 SVLGQLGITKVFSNGADLSGVTEEAPLKLSKAVHKAVLTIDEKGTEAAGAMFLEAIPMSI 361
          ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
Db    325 SVLGQLGITKVFSNGADLSGVTEEAPLKLSKAVHKAVLTIDEKGTEAAGAMFLEAIPMSI 384

Qy    362 PPEVKFNKPFVFLMIEQNTKSPLFMGKVVNPTQK 395
          ||||||||||||||||||||||||||||||||||
Db    385 RPEVKFNKPFVFLMIEQNTKSPLFMGKVVNPTQK 418
```

Search completed: November 30, 2002, 12:35:00
Job time : 29 secs